



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

TARDEC - University Partnerships for Technical Excellence

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Combat Vehicles



Military Bridging



Fuel and Water Storage & Distribution Quality Surveillance Equipment

MISSION: Provide full service life cycle engineering support to our TACOM LCMC customers (PEO GCS, PEO CS&CSS, ILSC) and PM FCS (BCT), to develop and integrate the right technology solutions to the effectiveness for the current force and realize the superior capability of the future force to facilitate army transformation.

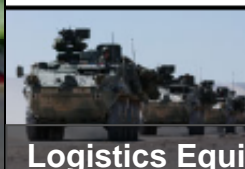
VISION: Be the first choice of technology and engineering expertise for ground vehicle systems and support equipment - today and tomorrow.



Trailers



Water Generation and Purification



Logistics Equipment

Watercraft



TARDEC is responsible for research, development and engineering support to more than **2800** Army systems and many of the Army's and DoD's top joint warfighter development programs:

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

GROUND VEHICLE SYSTEMS AND SUPPORT EQUIPMENT- FOR TODAY AND TOMORROW



Current

70 ton main battle tank
Unarmored Tactical
100% Manned Systems

Conventional Power Trains

Passive Suspension
Steel Track
Periscopes
Conventional Armaments

Point to point Voice Communication

Enabling the Current Force
Enabling the Future Force



Future

25-30 ton manned ground vehicle (FCS (BCT))
Armored Tactical
Combined Manned/
Unmanned Capabilities
Hybrid Electric Systems w/
exportable power
Active Suspension
Segmented Band Track
Indirect Vision Driving
High Power (EM) and
Laser Weapons
Shared Common Operating Picture
Onboard Water Generation
Fire-Resistant Fuels
Laser Protection
Diagnostics/prognostics
Integrated C4ISR



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High Performance Computing



Propulsion Laboratory



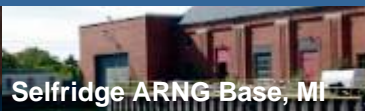
Hybrid Electric Combat SIL



FCS Structural Material Development and Testing



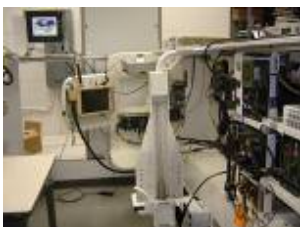
Water Quality and Water Test Cell Laboratories



Bradley Transmission Test Cells



Stryker SIL



Ballistics Range



Drop tower



Motion Base Simulators





Stanford AI Lab



Kettering University™

LAWRENCE
TECHNOLOGICAL
UNIVERSITY



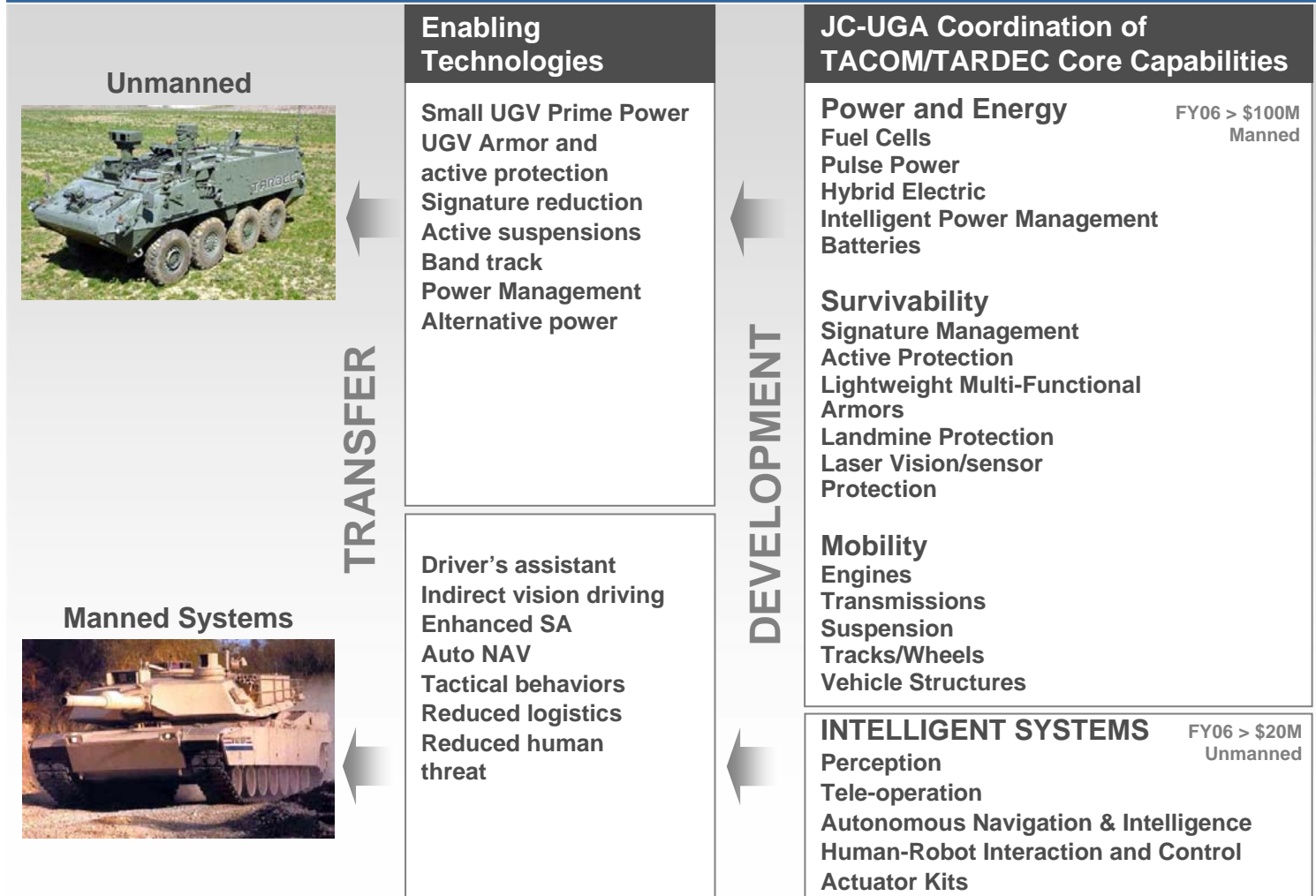
WAYNE STATE
UNIVERSITY



The Automotive Research Center (ARC) is a partnership of **eight top-ranked universities led by the University of Michigan**. Other participating institutions include Clemson University, Oakland University, the University of Alaska-Fairbanks, the University of Iowa, the University of Tennessee, the University of Wisconsin, and Wayne State University. The Center conducts basic research that advances the state of the science in high-fidelity modeling, simulation, and testing of military and civilian ground vehicles. By leveraging the expertise of leading research universities and their facilities, the ARC helps industry and government partners achieve significant, far-reaching design objectives and serves as a resource for technical training.



Co-located with TACOM LCMC for Synergy between Manned and Unmanned Vehicles



Human Capital Strategy

Assess **Analyze** **Strategize** **Execute** **Measure and Control** **Continuous Improvement**

2006 **2007** **2008**

Recruitment Strategy

- Target Gaps
 - Mission Baseline/ Future Competencies
- **Leverage Auto Industry Downturn**
- **Strengthen Diversity**
 - HBCU/MI Relationships
 - Nationally acclaimed University Programs (CMU, Georgia Tech, etc)
- Align Coop Program Input to Competency Timeline

Training Strategy

- Defined Competency Career Paths/IDPs
- Intern/Journeyman/ Senior Timeline
- **Rotational Experiences**
- Leadership Career Ladder
- Program/Acquisition Desired Skills

Development Strategy

- Program/Mission Communication Plan
- Individual/Leadership Accountability
- Mentorship Program
- LCMC/Customer Integration

Continuous Improvement

- **Baseline Organization**
- Continuous Competency Assessment Metrics
- Succession Plan
- Emerging S&T Drivers
- Retention/Partnering Collaboration

Summer Hire Program

- Expose high school and college students to multiple eng and tech possibilities
- 60 – 85 positions filled/yr
- 8 week Program
- Average conversions to Coop: 15

Co-op Program

- Human Capital CP16/15 career program initiative
- 40-50 positions continuously filled during the past 10 years
- The Summer Hire is pipeline
- 93% minimum retention rate the past 4 years

Student Temporary Employment Program

- Undergraduate or graduate students
- Pursuing program credits related to the work of TARDEC

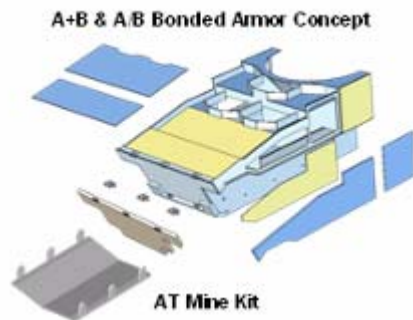
Career Intern Program

- Graduates of accredited colleges and universities
- Seeking entry level career development positions
- Offers demanding yet rewarding training and a clear progression pattern

Real Time Improvements: Developmental Rotations, Baseline Organization

FCS ARMOR DEVELOPMENT

Provide FCS Mounted Ground Vehicle platforms with affordable, manufacturable armor protection against objective threats (KE, CE and mines) at reduced weights



A = Hull Structure Armor

B_x = Laminate Composite Ceramic Armor

B₂ = Future Threat Heavy
B₃ = Future Threat 0.75 wt

TACTICAL WHEELED VEHICLE ATO



Autonomous Platform Demonstrator



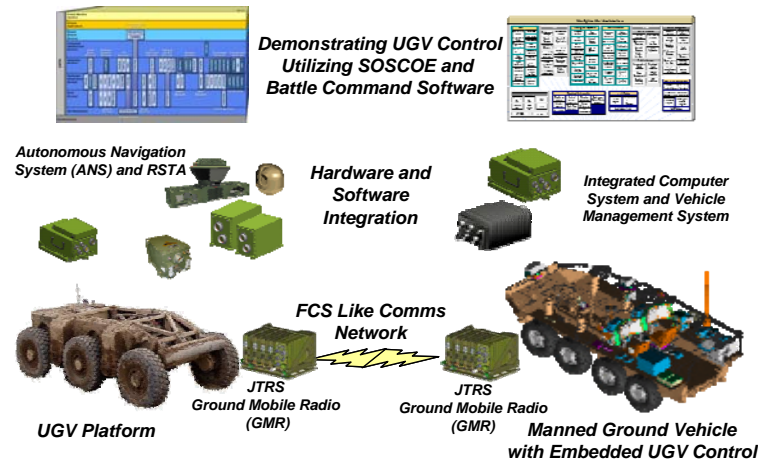
Joint Center for Unmanned Ground Vehicles

Co-located with TACOM LCMC for Synergy between Manned and Unmanned Vehicles

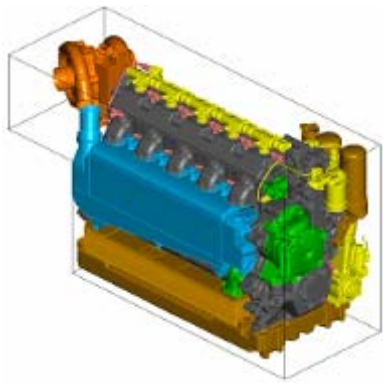


Robotic Vehicle Technologies ATO for FCS

UGV Technology Development and Integration



Engine-Generator Test Lab (EGTL)



High Performance Engine Research



MTU 4L890 Diesel Engine
Turbocharging
Technologies



Hybrid Electric Vehicle Experimentation and Assessment (HEVEA)



HMMWV Series HE



RSTV Series HE



Parallel Hybrid MSV



2 Parallel hybrid UVs

Hybrid Electric Combat SIL



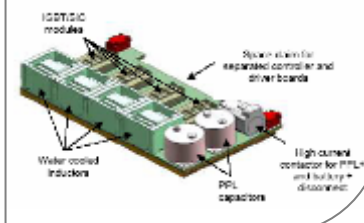
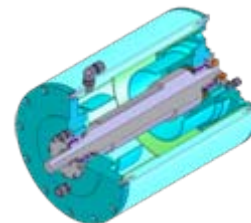
Advanced Lightweight Track



IPM Traction
Motor Technology



SiC Power
Electronics





TARDEC BOOTS
ARE ON THE GROUND



BACK UP



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.



Associates from a number of Nationally recognized Tier 1 schools.

- University of Michigan
- Michigan State University
- Michigan Tech University
- Under NAC/ARC program
 - University of Michigan, Clemson University, University of Tennessee, University of Iowa, University of Wisconsin

Associates employed as of April 1, 2007 hold degrees BS/MS/PhD from these programs

University of Michigan **167**

Michigan State University **71**

Michigan Tech **51**

Associates getting degrees at this time from these programs:

University of Michigan **50**

Michigan State University **5**

Coops presently employed as of July 31, 2007

University of Michigan **8**

Michigan State **1**

Michigan Tech **0**

Purpose: Present Universities with information about TARDEC's technical thrusts, project requirements, and capability gaps. This event will provide a forum for networking and enhancing communication for engineers, scientists and researchers from the academic world, industry and the government.

Message: TARDEC's ability to partner with academia to develop cooperative relationships that will further advance and improve the technology that TARDEC provides the Soldiers.

Dates: 14-15 April 2008 (in conjunction with SAE World Congress at Cobo Hall)

Monday, 14 April 2008 (invitations to approximately 12 Deans)

- SAE's Industry/Government/Academia Luncheon at Cobo Hall
- Dr. Bochenek's Session(s) with University Deans at Cobo Hall
- Tour TARDEC booth on show floor

Tuesday, 15 April 2008

- APBA Planned for one-day event (possibly 8:00 am – 5:00 pm)
- Briefings from members of the EXCOM